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22223

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: **10****
- a) Name the four of petroleum refinery in India.
 - b) List any two test properties of diesel.
 - c) Give any two objectives of vis breaking.
 - d) Give any two uses of formaldehyde and ethanol.
 - e) List the four components of Petroleum.
 - f) Give the name of nay four chemicals obtained from C₄ hydrocarbon.
 - g) Give the name of any four petrochemical industries in India.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Give the composition of crude oil in terms of
 - i) Elements
 - ii) Hydrocarbon
 - b) Distillation is considered as a major unit operation in petroleum refinery. Give reason.
 - c) Explain any one method of oil removal in petroleum industry.
 - d) Differentiate between thermal cracking and catalytic cracking (4 points)
- 3. Attempt any THREE of the following:** **12**
- a) Explain vacuum distillation of crude oil with sketch.
 - b) Explain the process of manufacturing of methanol.
 - c) Explain the process of hydrocracking with flow sheet diagram.
 - d) Draw the diagram of Pensky Marten's apparatus and label the parts.
- 4. Attempt any THREE of the following:** **12**
- a) Give the classification of crude oil.
 - b) Give the reaction involved in the manufacture of butadiene and MTBE.
 - c) Explain hydrofluoric acid alkylation process.
 - d) Explain delayed coking with flow sheet diagram.
 - e) Explain Index process with flow sheet diagram.

5. Attempt any TWO of the following:**12**

- a) Define :
- i) Calorific value
 - ii) Pour point
 - iii) Drop point
 - iv) Fire point.
 - v) Cloud point
 - vi) Aniline point.
- b) Explain the manufacture of aniline from phenol. Draw the flow sheet and give the reactions involved in it.
- c) Explain with reaction and flow sheet the manufacture of ethylene oxide.

6. Attempt any TWO of the following:**12**

- a) List the fractions obtained from the refining of crude oil with their boiling point and any one use; (any six of fractions).
- b) Explain the manufacture of vinyl chloride with reaction.
- c) Explain hydrogenation with reaction and flow sheet diagram.
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